

EMC TEST REPORT

Report No:

TMC181203104-E

File reference No:

2018-5-7

Applicant:

Hipcam Ltd.

Product:

Doorbell Camera

Brand Name:

Hipcam

Model No:

HD008, HD009, HD010, HD011, HD012, HD015, HD016,

HD017, HD018, HD019, HD020

Test Standards:

ETSI EN 301 489-1 V2.1.1(2017-02)

ETSI EN 301 489-17V3.1.1(2017-02)

Test result:

The EMC testing has been performed on the submitted samples and

found in compliance with council EMC Directive

2014/30/EU and RED Directive 2014/53/EU

Approved By



Lemon Rao

MC Manager

Dated

December 17, 2018

Results appearing herein relate only to the sample tested

The technical reports is issued errors and omissions exempt and is subject to withdrawal at

TMC Testing Services (Shenzhen) Co., Ltd.

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General Information

1.1 Notes

The test results of this report relate exclusively to the test item specified in 1.5. The TMC Lab does not assume Responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the TMC Lab.

1.2 Testing Laboratory

TMC Testing Services (Shenzhen) Co., Ltd.

1/F., Block A, Xinshidai Gongrong Industrial Park, No. 2, Shihuan Road, Shilong Community, Shiyan Street, Bao an District, Shenzhen, China

1.3 Details of Applicant

Name: Hipcam Ltd.

Address: 11th.Gush Tzi Tzion St. Giva'at Shmuel Israel

1.4 Test Item

Manufacturer: ShenZhen SiGo Electronics Company Limited

Address: No. 143 Huasheng Road, Dalong street, Longhua District, Shenzhen

Brand Name: Hipcam Model No.: HD008

Additional Model No.: HD009, HD010, HD011, HD012, HD015, HD016, HD017, HD018, HD019, HD020

Additional Brand Name: N/A Description: Doorbell Camera

1.5 Additional Information

Frequency: 2412 ~ 2472MHz-WIFI Number of Channels: 11 Channels

Hardware Version:V1.0 Software Version: V1.0

Antenna Designation: Onboard PCB antenna with gain 0dBi

Type of Modulation: DSSS OFDM for WIFI Extreme Temp. Tolerance: -20°C to 55°C



1.6 List of Ports

| Port | Description | Classification 1 | Maximum cable Length | Cable Type |
|--------------|-------------|------------------|----------------------|---|
| USB Port | | | | |
| Line in Port | A 100 T | | | A SAME AND |

¹prots shall be classified as ac power, dc power or signal/control port. Note

1. 7 Ancillary and Peripheral Devices

| Description | Designation | Serial No. | Manufacturer |
|-------------|-------------|------------|--------------|
| N/A | 7- | | (A. 17 N.) |
| | | | |

List of Peripheral Devices Used for Testing

| Description | Designation | Serial No. | Manufacturer |
|-------------|-------------|------------|--------------|
| | | | |

²Maximum cable length corresponding to the appropriate ports shall be classified as \leq 3m or \geq 3m.

An Equipment (apparatus) used in connection with a receiver or transmitter is considered as an ancillary Note: Equipment (apparatus) if:

- a. The equipment is intended for use in conjunction with a receiver or transmitter to provide additional operational and/or control features to the radio equipment. (e.g. to extend control to another position or location); and
- b. The equipment cannot be used on a stand alone basis to provide user functions independently of a receiver or transmitter; and
- c. The receiver or transmitter to which it is connected, is capable of providing some intended operation such as transmitting and/or receiving without the ancillary equipment (i.e. it is not a sub-unit of the main equipment essential to the main equipment basic functions).

1.8 Test Standards

ETSI EN 301 489-1 V2.1.1(2017-02)

Electromagnetic compatibility and Radio spectrum Matters (ERM);

Electromagnetic Compatibility (EMC) standard for radio equipment and services;

Part 1: Common technical requirements

ETSI EN 301 489-17V3.1.1(2017-02)

Electromagnetic compatibility and Radio spectrum Matters (ERM);

Electromagnetic Compatibility (EMC) standard for radio equipment and services;

Part 17: Specific conditions for 2.4GHz wideband transmission systems and 5GHz high performance RLAN equipment

All radiated measurements were made in all three orthogonal planes. The values reported are the Note: maximum values.

Test or Witness Test Engineering

Printing Name: Nina Wu



2. Summary

2.1. General Remarks

Date of receipt of test sample: December 3, 2018

Testing commenced on: December 3, 2018

Testing concluded on: December 3, 2018 to December 6, 2018

2.2. Equipment Under Test

Power supply system utilised

Power supply voltage: o 230V / 50 Hz o 115V / 60Hz

o 12 V DC o 24 V DC

o Other (specified in blank below)

● 5.0V DC

2.3. Description of the Equipment under Test (EUT)

The device is a Doorbell Camera, support Wi-Fi function,

| Name of EUT | Doorbell Camera |
|-----------------------------|--|
| Model Number | HD008 |
| Antenna Type | Onboard PCB antenna |
| WLAN CE Operation frequency | IEEE 802.11b:2412-2472MHz |
| | IEEE 802.11g:2412-2472MHz |
| | IEEE 802,11n HT20:2412-2472MHz |
| WLAN CE Modulation Type | IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) |
| | IEEE 802.11g: OFDM(64QAM, 16QAM, |
| | QPSK, BPSK) |
| | IEEE 802.11n HT20: OFDM (64QAM, 16QAM, |
| | QPSK,BPSK) |
| | |

2.4. EUT operation mode

The EUT has been tested under typical operating condition. A software used to control the EUT for staying in transmitting and receiving mode for testing.

2.5. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

o - supplied by the manufacturer

- supplied by the lab



2.6. Mode of Operation

TMC has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

| Test Mode | | | ₫* | · · | |
|-----------|-------------|-------------|----------|-----|------|
| EMI | Mode 1: Wo | orking | | | |
| KJ317.A | Mode 2: Co | mmunication | by Wi-Fi | | |
| EMS | Mode 1: W | orking | | | |
| | Mode 2: Str | ındby | • | | |
| | Mode 3: Co | mmunication | by Wi-Fi | | |

Test modes description:

- 1. Because the EUT support Wi-Fi function, emissions test will not take account of wireless portions. The emission from EUT stand alone applies with harmonized radio standard. Please check it in reports
- 2. Wi-Fi communication mode; during the test, the Wi-Fi function was on and transfer files to notebook PC via wireless router.

2.7. Immunity Performance criteria

General Requirements (ETSI EN 301489-1):

The performance criteria are used to take a decision on whether radio equipment passes or fails immunity tests.

For the purpose of the present document four categories of performance criteria apply:

- performance criteria for continuous phenomena applied to transmitters;
- performance criteria for transient phenomena applied to transmitters;
- performance criteria for continuous phenomena applied to receivers;
- performance criteria for transient phenomena applied to receivers.

Normally, the performance criteria depend on the type of radio equipment. Thus, the present document only contains general performance criteria commonly used for the assessment of radio equipment. More specific and product-related performance criteria for a dedicated type of radio equipment may be found in the part of EN 301 489 series [22] dealing with the particular type of radio equipment.

(1) Performance criteria for continuous phenomena applied to transmitters and receivers If no further details are given in the relevant part of EN 301 489 series [22] dealing with the particular type of radio equipment, the following general performance criteria for continuous phenomena shall apply. During and after the test, the apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed a permissible performance level specified by the manufacturer when the apparatus is used as intended. In some cases this permissible performance level may be replaced by a permissible loss of performance.

During the test the EUT shall not unintentionally transmit or change its actual operating state and stored data.

If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deduced from the product description and documentation and what the user may



reasonably expect from the apparatus if used as intended

(2) Performance criteria for transient phenomena applied to transmitters and receivers If no further details are given in the relevant part of EN 301 489 series [22] dealing with the particular type of radio equipment, the following general performance criteria for transient phenomena shall apply.

After the test, the apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed below a permissible performance level specified by the manufacturer, when the apparatus is used as intended. In some cases this permissible performance level may be replaced by a permissible loss of performance.

During the EMC exposure to an electromagnetic phenomenon, a degradation of performance is, however, allowed. No change of the actual mode of operation (e.g. unintended transmission) or stored data is allowed.

If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deduced from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended,

(3) Performance criteria for equipment which does not provide a continuous communication link For radio equipment which does not provide a continuous communication link, the performance criteria described in clauses (1) and (2) are not appropriate, then the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests. The performance specification shall be included in the product description and documentation. The related specifications set out in clause 5.3 of EN 301 489-1 V1.9.2 (2011-09) have also to be taken into account.

The performance criteria specified by the manufacturer shall give the same degree of immunity protection as called for in clauses (1) and (2).

(4) Performance criteria for ancillary equipment tested on a stand alone basis If ancillary equipment is intended to be tested on a stand alone basis, the performance criteria described in clauses (1) and (2) are not appropriate, then the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests. The performance specification shall be included in the product description and documentation. The related specifications set out in clause 5.3 of EN 301 489-1 V1.9.2 (2011-09) have also to be taken into

The performance criteria specified by the manufacturer shall give the same degree of immunity protection as called for in clauses (1) and (2).

Special Performance Requirements (ETSI EN 301489-17):

The performance criteria are:

performance criteria A for immunity tests with phenomena of a continuous nature;

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performance criteria B for immunity tests with phenomena of a transient nature; performance criteria C for immunity tests with power interruptions exceeding a certain time. The equipment shall meet the minimum performance criteria as specified in the following clauses:

Performance criteria for Continuous phenomena applied to Transmitters (CT)

The performance criteria A shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an Acknowledgement (ACK) or Not Acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

Performance criteria for Transient phenomena applied to Transmitters (TT)

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5000 ms duration, for which performance criteria C shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an acknowledgement (ACK) or not-acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

Performance criteria for Continuous phenomena applied to Receivers (CR)

The performance criteria A shall apply

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

Performance criteria for Transient phenomena applied to Receivers (TR)

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5000 ms duration for which performance criteria C shall apply.

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.



| Criteria | During Test | After test |
|----------|--|---|
| A | Shall operate as intended May show degradation of performance (see note 1) Shall be no loss of function Shall be no unintentional transmissions | Shall operate as intended Shall be no degradation of performance (see note 2) Shall be no loss of function Shall be no loss of stored data or user programmable functions |
| В | May show loss of function (one or more) May show degradation of performance (see note 1) No unintentional transmission | Functions shall be self-recoverable Shall operate as intended after recovering Shall be no degradation of performance (see note 2) Shall be no loss of stored data or user programmable functions |
| С | May be loss of function (one or more) | Functions shall be recoverable by the operat Shall operate as intended after recovering Shall be no degradation of performance (sentence 2) |

NOTE 1: Degradation of performance during the test is understood as a degradation to a level not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance.

If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

NOTE 2: No degradation of performance after the test is understood as no degradation below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. After the test no change of actual operating data or user retrievable data is allowed. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.



3 Test environment

3.1. Address of the test laboratory

TMC Testing Services (Shenzhen) Co., Ltd.

5/F, Building E, Guanghao Industrial Park, Yunfeng Road, Longhua District, Shenzhen, China The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2009) and CISPR Publication 32

3.2. Environmental conditions

During the measurement the environmental conditions were within the listed ranges;

Temperature: 22-25 ° C Humidity: 40-54 %

Atmospheric pressure: 950-1050mbar

3.3. Test Description

| NO | Basic Standard | Test Type | Result |
|----------------|-------------------|---|----------|
| | SSION (EN 301 489 | | |
| 1 | EN 55032 | Radiated emission | PASS |
| 2 | EN 55032 | Conducted emission, DC ports | N/A |
| 3. | EN 55032 | Conducted emission, AC ports | N/A |
| 4 | EN 55032 | Conducted emission, Telecom ports | N/A |
| 5 | EN 61000-3-2 | Harmonic current emissions | N/A |
| | EN 61000-3-2 | Voltage fluctuations & flicker | N/A |
| 6 111/11/1 | IUNITY (EN 301 48 | | |
| 7 | EN 61000-4-2 | Electrostatic discharge immunity | PASS |
| 8 | EN 61000-4-3 | Radiated RF electromagnetic field immunity (80MHz to 2000MHz) | PASS |
| 9 | EN 61000-4-4 | Electrical fast transient/burst immunity | N/A |
| $\frac{9}{10}$ | ISO 7637-1, -2 | Transients and surges, DC ports | PASS |
| | EN 61000-4-5 | Surge immunity, AC ports, Telecom ports | N/A |
| 11. | EN 61000-4-6 | Immunity to conducted disturbances induced by RF fields | N/A |
| 12 | | Voltage dips and short interruptions immunity | N/A |
| 13 | EN 61000-4-11 | Voltage dips and short dictraptions infiniting | <u> </u> |

Remark: The measurement uncertainty is not included in the test result.



3.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods - Part 4: Uncertainty in EMC

Measurements" and is documented in the TMC lab. quality system acc.

to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for TMC laboratory is reported:

| T'est | Range | Measurement Uncertainty | Notes |
|--------------------|------------|----------------------------|-------|
| Radiated Emission | 30~1000MHz | ±4.10dB | (1) |
| Radiated Emission | 1~12.75GHz | ±4,32dB | (I) |
| Conducted Emission | 0.15~30MHz | ±3.22dB | (1) |

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Harmonic Current Emission

The measurement uncertainty is evaluated as \pm 1.2 %.

Voltage Fluctuations and Flicker

The measurement uncertainty is evaluated as \pm 1.5 %.

Electrostatic Discharge

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in ESD testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant ESD standards. The immunity test signal from the ESD system meet the required specifications in IEC 61000-4-2 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63% and 2.76%.

RF Electromagnetic Field

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in RS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant RS standards. The immunity test signal from the RS system meet the required specifications in IEC 61000-4-3 through the calibration for the uniform field strength and monitoring for the test level with the uncertainty evaluation report for the electrical filed strength as being 2.72 dB.



Fast Transients Common Mode

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in EFT/Burst testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant EFT/Burst standards. The immunity test signal from the EFT/Burst system meet the required specifications in IEC 61000-4-4 through the calibration report with the calibrated uncertainty for the waveform of voltage. Frequency and timing as being 1.63% and 2.76%.

Surges

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in Surge testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant Surge standards. The immunity test signal from the Surge system meet the required specifications in IEC 61000-4-5 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63% and 2.76%.

RF Common Mode

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in CS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant CS standards. The immunity test signal from the CS system meet the required specifications in IEC 61000-4-6 through the calibration for unmodulated signal and monitoring for the V1.0 Page 11 of 43 Report. Test level with the uncertainty evaluation report for the injected modulated signal level through CDN and EM

Clamp/Direct Injection as being 3.72 dB and 2.78 dB

Voltage Dips and Interruption

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in DIP testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant DIP standards. The immunity test signal from the DIP system meet the required specifications in IEC 61000-4-11 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63% and 2.76%.

Transients and Surges

As what is concluded in the document from Note2 of clause 5.4.6,2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in Transients and Surges testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant DIP standards. The immunity test signal from the Transients and Surges system meet the required specifications in ISO 7637-2 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.60% and 2.60%.



3.5. Equipments Used during the Test

| onduct | ed Susceptibility (CS): | | | | |
|---------------|-------------------------------------|--------------|------------|---------------|------------|
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. |
| 1 | Conducted Disturbances | SCHLODER | CDG 6000 | N/A | 2018/05/20 |
| | test system | SCHLODER | 4N100W-6DB | N/A | 2018/05/20 |
| 2 | Amplifier Dual-Directional Coupler | AR | DC2600 | 302389 | 2018/05/13 |
| $\frac{3}{4}$ | 6db Attenuator | EMTEST | ATT6/75 | 0010230A | 2018/05/20 |
| 5 | EM CLAMP | LÜTHI | EM101 | 335625 | 2018/05/20 |
| 6 | . CDN | SCHLODER | CDN M2+M3 | A2210225/2013 | 2018/05/20 |

| | | | | | 7 mm 1/4 mm mm V mhala mm m m m m m m m m m m m m m m m m m |
|--|--------------------------------|---------------|-----------|------------|---|
| Harmoni | c Current/ Voltage Fluctuation | n and Flicker | | | T in and Cal |
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. |
| 1 | Purified Power Source | MToni | PHF 5010 | N/A | 2018/05/20 |
| 2 | Harmonie And Flicker | Voltech | PM6000 | N/Λ | 2018/05/20 |
| The second secon | Analyzer | | | | |

| Radiate | d Emission | | | Serial No. | Last Cal. |
|---------|-------------------|----------------|---------------|---|------------|
| Item | Test Equipment | Manufacturer | Model No. | | |
| 1 | ULTRA-BROADBAND | Sunol Sciences | JB1 Antenna | A061713 | 2018/05/22 |
| | ANTENNA | Corp. | | | |
| 2 | EMI TEST RECEIVER | ROHDE & | ESPI | 1164.6407.07 | 2018/05/22 |
| | | SCHWARZ | | | |
| 3 | RF TEST PANEL | ROHDE & | TS / RSP | 335015/ 0017 | 2018/05/19 |
| | | SCHWARZ | | | |
| 4 | Controller | EM Electronics | Controller EM | N/A | 2018/05/19 |
| | | | 1000 | | |
| - 5 | EMI TEST | ROHDE & | ESK1 | N/A | 2018/05/22 |
| , i.e. | SOFTWARE | SCHWARZ | | | |
| Condu | cted Emission | į: | | | |
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. |
| 1 | EMI Test Receiver | ROHDE & | ESCI | 1166.5950.03 | 2018/05/20 |
| | d e | ŞCHWARZ | e | | - 1 |
| 2 | LISN | ROHDE & | ENV216 | 101034 | 2018/05/19 |
| | | SCHWARZ | | 1 | `: |
| 3 | EMI Test Software | ROHDE & | ESK1 | N/A | 2018/05/19 |
| | | SCHWARZ | | | |

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| RF Fiel | d Strength Susceptibility | P. S. | <u> </u> | <u> </u> | 1 300 |
|---------|---------------------------|--------------|-----------|------------|------------|
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. |
| 1 | SIGNAL | IFR. | 2032 | 203002/100 | 2018/05/22 |
| | GENERATOR | | | · · | |
| 2 | AMPLIFIER | AR | 150W1000 | 301584 | 2018/05/20 |
| 3 | DUAL DIRECTIONAL COUPLER | AR | DC6080 | 301508 | 2018/05/20 |
| | POWER HEAD | AR | PH2000 | 301193 | 2018/05/20 |
| 4 | POWER METER | AR | PM2002 | 302799 | 2018/05/20 |

| Electric | eal Fast Transient/Surge/Dips | | | | |
|----------|-------------------------------|--------------|-----------|------------|---------------|
| Item | Test Equipment | Manufacturer | Model No. | Scrial No. | Last Cal. |
| HUIH | | HAEFELY | ЕСОМРАСТ4 | 174887 | 2018/05/20 |
| 1 | Ultra Compact | LIMBLIDE. | Loom To | | |
| | Simulator | | | | And Marketing |

| Electro | static Discharge | · | | | |
|---------|------------------|--------------|-----------|------------|------------|
| Item | Test Equipment | Manufacturer | Model No. | Scrial No. | Last Cal. |
| 1 | ESD Simulator | SKYLARK | ESD-2000 | 0220K10251 | 2018/05/13 |
| | | L | | | |

| 50.03 2018/05/20 |
|------------------|
| |
| |
| 02 2018/05/20 |
| 2018/05/20 |
| - |

| Disturb | ance Power | | | | |
|---------|-------------------|--------------|-----------|--------------|------------|
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. |
| 1 | EMI Test Receiver | ROHDE & | ESCI | 1166.5950.03 | 2018/05/20 |
| | | SCHWARZ | | 76A | |
| 2 | Absorbing Clamp | EVERFINE | MDS-21 | 4035 | 2018/05/22 |
| 3 | EMI Test Software | ROHDE & | ESK1 | N/A | 2018/05/20 |
| | | | | | |



TMC Testing Services (Shenzhen) Co., Ltd.

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| Item Test Equipment | | Manufacturer | Model No. | Scrial No. | Last Cal. |
|---------------------|-------------------|--------------|---------------------------------------|--------------|------------|
| 1 | EMI Test Receiver | ROHDE & | ESCI | 1166.5950.03 | 2018/05/20 |
| | | SCHWARZ | · · · · · · · · · · · · · · · · · · · | | |
| 2 | RF TEST PANNEL | EVERFINE | TS / RSP | 335015/ 0017 | 2018/05/20 |
| 3 | SIGNAL | BARCO | COSMS | 50041 | 2018/05/20 |
| 4 | EMI Test Software | ROHDE & | ESKI | N/A | 2018/05/20 |
| | | SCHWARZ | | | |

| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. |
|------|--|--------------|-----------|------------|------------|
| 1 | ULTRA COMPACT SIMULATOR | EM TEST | UCS500M6 | 202304/060 | 2018/05/20 |
| 2 | MOTOR DRIVEN VOLTAGE TRANSFORMER | EM TEST | MV2616 | 302205 | 2018/05/20 |
| 3 | CURRENT TRANSFORMER | EM TEST | MC2630- | 302389 | 2018/05/20 |
| 4 | MAGNETIC COIL | EM TEST | MS100 | 0010230A | 2018/05/20 |

Mark: The Cal. Due is I year.



4. Test conditions and result

4.1. Radiated Emission

For test instruments and accessories used see section 3.6.

4.1.1. Description of the test location

Test location: Shielded room No. 2

4.1.2. Limits of disturbance (EN55032 B)

Please refer to ETS1 EN 301 489-1 Clause 8.2.3, Table 4 and EN 55032 Clause 6, Table 6, Class B

| Frequency (MHz) | Distance (Meters) | Field Strengths Limits (dBµV/m) |
|-----------------|-------------------|---------------------------------|
| 30 ~ 230 | 3 | 40 |
| 230 ~ 1000 | 3 | 47 |

| | Limits for Abo | we 16Hz | |
|-----------------|----------------|----------------------|-----------------------|
| Frequency (GHz) | Distance (m) | Average 7dB(AV/m) | s to Peak (dBdV/m) |
| 1 - 3 | 3 | 50 | 70 |
| 3 - 6 | 3 | 54] | 74 |

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

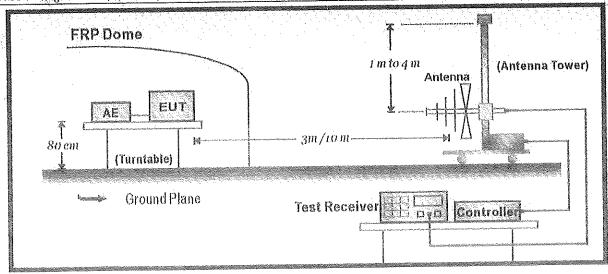
4.1.3. Description of the test set-up

4.1.3.1. Operating Condition

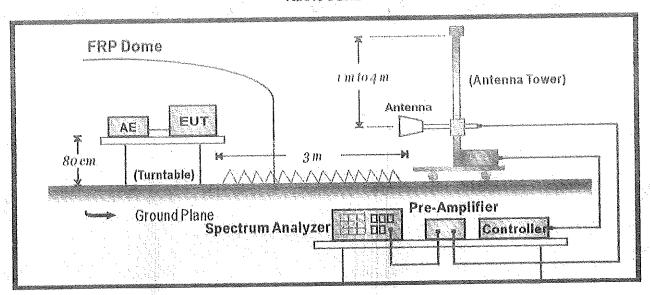
The EUT is set to work shall be carried out with normal communication mode during the test, and the maximum emanating results are recorded.

4.1.3.2. Configuration of test setup

Below 1GHz

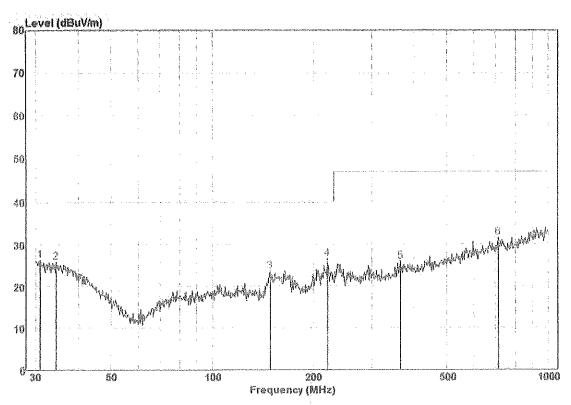


Above 1GHz



4.1.4. Test result

All test modes were verified, and the worst case is mode I, the test result was shown below:



Condition: EN55032 CLASS B 3m HL562_30M-1GHZ_WEW HORIZONTAL

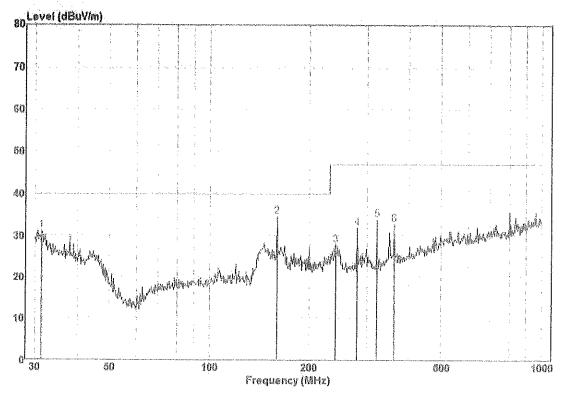
: RBW:120.000KHz

eut Doorbell Camera

mode HD008

REMARK

| | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark | Pol/Phase |
|-----------|--------|---------------|--------|--------|---------------|---------------|--|--|
| gaust Ser | MHZ | dBuV | dB/m | dBuV/m | dBuV/m | dB | - IMAGENIA ACEDIAN II ACED (PITTATE I TERRET | Water to be a second of the se |
| 1 | 30,85 | 8.76 | 17.72 | 26.48 | 40.00 | -13.52 | Peak | HORIZONTAL |
| 2 | 34.28 | 8,73 | 17.28 | 26.01 | 40,00 | -13.99 | Peak | HORIZONTAL |
| 3 | 148.44 | 14.12 | 9,55 | 23.67 | 40.00 | -16.33 | Peak | HORIZONTAL |
| 4 pp. | 220.62 | 15.48 | 11.21 | 26.69 | 40.00 | -13.31 | Peak | HORIZONTAL |
| 5 | 362.98 | 10.76 | 15.21 | 25.97 | 47.60 | -21.03 | Peak | HORIZONTAL |
| 6 | 711.67 | 10.71 | 20.90 | 31.61 | 47.00 | -15.39 | Peak | HORIZONTAL |



Condition: EN55032 CLASS B 3m HL562_30M-1GHZ_MNEW VERTICAL

: RBW:120.000KHZ

eut Doorbell Camera

mode HD008

REMARK

| | freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark | Pol/Phase |
|------|--------|---------------|--------|--------|---------------|---------------|--------|-----------|
| | MH2 | dBuV | dB/m | dBaV/m | dBuV/m | dВ | | |
| 1 | 31.29 | 13.47 | 17.68 | 31.15 | 40.00 | -8,85 | Peak | VERTICAL |
| 2 pp | 159.78 | 25.20 | 9.39 | 34.59 | 40.00 | -5.41 | Peak | VERTICAL |
| 3 | 239.99 | 16.13 | 11.72 | 27.85 | 47.00 | -19.15 | Peak | VERTICAL |
| 4 | 280.02 | 19.31 | 12.59 | 31.90 | 47.00 | -15.10 | Peak | VERTICAL |
| 5 | 319.94 | 20.15 | 13.86 | 34.01 | 47.00 | -12.99 | Peak | VERTICAL |
| 6 | 360.45 | 17.51 | 15.21 | 32.72 | 47.00 | -14.28 | Peak | VERTICAL |



| Test Mode: TM1(above 1GHz) | *** | Test Distance: 3m | , e th , | |
|----------------------------|-----|----------------------|---------------------|------|
| Test voltage: DC 5V | | Test Results: Passed | | |
| Detector Function: Peak+AV | | | | |

| Frequency | Emission Level dBµV/m | | Lir | Limits | | Margin | | |
|-----------|--------------------------|-------|--------|--------|--------|--------|-----|--|
| MHz | | | dΒμV/m | | dΒμ | V/m | | |
| | Peak | AV | Peak | AV | Peak | A٧ | | |
| 1241.67 | 55,56 | 30.06 | 70.00 | 50.00 | -14,44 | -19.94 | Н | |
| 1914.24 | 54.24 | 36,21 | 70.00 | 50,00 | -15.76 | -13.79 | | |
| 2110.73 | 55.75 | 36.96 | 70.00 | 50.00 | -14.25 | -13.04 | la] | |
| 3239.73 | 52.83 | 36,23 | 74.00 | 54.00 | -21,17 | -17.77 | H | |
| 4374.56 | 56.16 | 34.78 | 74.00 | 54.00 | -17.84 | -19.22 | Н | |
| 5770.77 | 48.36 | 37.43 | 74.00 | 54.00 | -25.64 | -16.57 | H | |
| 1242.47 | 55.35 | 32.47 | 70.00 | 50.00 | -14.65 | -17,53 | V | |
| 1914.62 | 53,26 | 36.45 | 70.00 | 50,00 | -16.74 | -13,55 | V | |
| 2110.42 | 56.27 | 36.74 | 70.00 | 50.00 | -13.73 | -13.26 | V | |
| 3239.41 | 52,88 | 36,89 | 74.00 | 54.00 | -21.12 | -17.11 | V | |
| 4375.32 | 55,46 | 33.88 | 74.00 | 54.00 | -18.54 | -20.12 | ν | |
| 5771.47 | 47.63 | 37.86 | 74.00 | 54.00 | -26.37 | -16.14 | V | |



4.2. Conducted disturbance

According to EMC Basic Standard (EN 55032 [7] Class-B)

- For the table top EUT the distance to the reference ground plane (wall) should be 40 cm. l.
- 2. AC input line plugged into LISN.

4.2.2. Limits of disturbance

Please refer to ETSI EN 301 489-1 Clause 8.4.3, Table 8 and EN 55032 Clause 5, Table 2, Class B

Limit of disturbance voltage at the mains terminals

| Frequency Range (MHz) | Limits (d) | Bu∀) |
|-----------------------|------------|--------|
| | Quasi-Peak | Averaş |
| 0.150~0.500 | 66~56 | 56~46 |
| 0.500~5.000 | 56 | 46 |
| 5,000~30.00 | 60 | 50 |

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

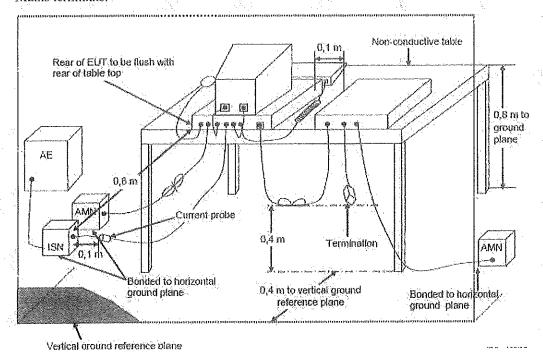
4.2.3. Description of the test set-up

4.2.3.1. Operating Condition

The EUT is set to normal communication mode during the test, and the maximum emanating results are recorded.

4.2.3.2. Configuration of test setup

Mains terminals:



4.2.4. Test result

N/A

Testing&Certification Services

TMC Testing Services (Shenizhen) Co., Ltd. 1/F., Block A, Xinshidai Gongtong Industrial Park, No. 2, Shihuan Road, Shilong Community, Sh iyan Street, Baoan District, Shenzhen, China t (86)755 86642861 cert@tmc-lab.com www.tinc-lab.com



4.3. AC Mains Harmonic Current Emission

This test was performed as per EMC Basic Standard EN61000-3-2:2014

EUT Operating Mode: N/A

Results

| Port | EUT Operating mode or | Result |
|----------|-----------------------|-------------------|
| | operating mode no. | (Passed / Failed) |
| AC Input | N/A | N/A |

| Limits for Class A equi | ipment | | | , N | | | |
|-------------------------|----------|----|--|-------------|------|-------|--|
| Harmonies order (n) | | | Max. permissible harmonics current (A) | | | t (A) | |
| | | | Odd harmoi | nics | | | NAME OF THE PERSON OF THE PERS |
| 3 | | | · | 2.3 | | | |
| 5 | | | | 1.14 | | | |
| 7 | | | | 0.77 | | | |
| 9.1 | 3 | | | 0,40 | | | |
| [[| : | | | 0.33 | | | |
| . 13 | | | | 0.21 | | | |
| 15<=n<=39 | | | | 0.15 x 15/n | | | |
| | <u> </u> | | Even harmo | nics | | | |
| 2 | | .: | | 1,08 | - 12 | | |
| 4 | N. T. | | | 0.43 | | | |
| 6 | | 1. | | 0.30 | ```` | N. | |
| 8<=n<=40 | - | | · · | 0.23 x 8/n | , t. | · · | |

Note:

- For Class A equipment, the harmonics of the input current shall not exceed the absolute values given in I. table 1.
- For Class B equipment, the harmonics of the input current shall not exceed the values given in table 1 2. multiplied by factor of 1, 5.



| | 34.34 | 14, 35 m | 2 (Table) | | |
|-----------------|-------------------------------------|---|--|---|---|
| | P_i | | 200 | | 1. |
| ermissible harn | mnice curr | out overseas. | | | |
| | TOTAL CHILL | ent expressed a | is a percentag | e of the input | curre |
| ì | ermissible harn `undamental fred | ermissible harmonics curr undamental frequency (A) | ermissible harmonics current expressed a undamental frequency (A) | ermissible harmonics current expressed as a percentag | ermissible harmonics current expressed as a percentage of the input |

| | Odd barmonics only | |
|---|--------------------|--|
| 2 | 2 | and the second s |
| | 30× λ * | |
| 5 | 10 | |
| | 7 | |
| 11. | 5 | |
| 11<= n<=39 ote: The harmonic current limits of | 3 | - Volume |

Note: The harmonic current limits of lighting equipment shall not exceed the relative limits given in table 2.

| Limits for Class D equ | Tarmonics Current Meas | Contraction of the Contraction o | Paradona and the complete and prompting of a second control of the complete of | | , |
|---|---|--|--|--|-------------------|
| Harmonics order (n) | Maximum permissible current per watt mA/W | harmonic | Maximu | m permissible h | armonic current A |
| | Odd h | armonics onl | y | Control of the contro | |
| 3 | 3.4 | | | 2.30 | |
| 5, 3, | 1.9 | | | | |
| 7 | 1.0 | | \$ 12.5 % | 1.14 | |
| 9 | | | | 0.77 | |
| 100 1 100 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 0.5 | | | 0.40 | |
| | <u> </u> | | N. Nest | 0.33 | |
| 13<=n<=39 | 3.85/n | | | | |
| 11<= n<=39 | 2.00711 | | | Sec table | 1 |

Note: The harmonic of the input current shall not exceed the values that can be derived form table 3.



Test Equipment

Please refer to Section 6 this report.

Test Procedure

- The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to a. produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.
- b. The EUT is classified as follows:
- Class A Balanced three-phase equipment and all other equipment, except that stated in one of the following classes.
- Class B Portable toots.
- Class C Lighting equipment, including dimming devices.
- Equipment having an input current with "special wave shape" and an active input power, $P \leqslant 600W$ Class D Note: Due to input power less than 75W, so this test item not applicable.



4.4. AC Mains Voltage Fluctuation and Flicker

This test was performed as per EMC Basic Standard EN 61000-3-3: 2013

EUT Operating Mode: ON

Results

| Port | EUT Operating mode or operating mode no. |
|----------|--|
| AC Input | ON |

Limits of Voltage Fluctuation and Flicks Measurement

| Test Item | Limit | Note |
|----------------------|-------|--|
| P _{st} | 1.0 | Pst means short-term flicker indicator |
| P _{lt} | 0.65 | Plt means long-term flicker indicator |
| T _{dt} (ms) | 500 | Tdt means maximum time that dt exceeds 3%. |
| d _{max} (%) | 4 | Dmax means maximum relative voltage change |
| de (%) | 3,3 | De means relative steady-state voltage change, |

Test Equipment

Please refer to Section 6 this report.

Test Procedure

The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal operating conditions.

During the flick measurement, the measure time shall include that part of whole operation cycle in which t he EUT 10 minutes and the observation period for long-term flicker indicator is 2 hours.

Test Result

N/A

4.5. Electrostatic discharge

For test instruments and accessories used see section 3.6.

4.5.1. Description of the test location and date

Test location: Shielded room No. 3 Date of test: December 4, 2018

Operator:

4.5.2. Severity levels of electrostatic discharge

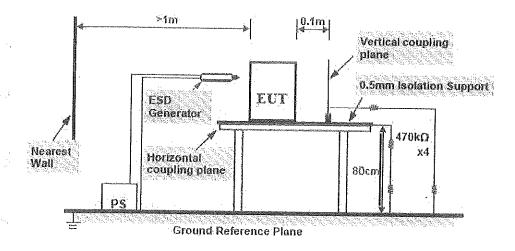
| Level | Test Voltage | Test Voltage |
|--|------------------------|--------------------|
| | Contact Discharge (KV) | Air Discharge (KV) |
| A STATE OF THE STA | 2 | 2 · |
| 2 | | 4 |
| 3 | 6 | 6 |
| 4 | 8 | 8 |
| X | Special | Special |

4.5.3. Description of the test set-up

4.5.3.1. Operating Condition

The EUT is set to work shall be carried out with normal communication mode during the test, and the maximum emanating results are recorded.

4.5.3.2. Configuration of test setup





4.5.4. Test specification:

Test Modes: Mode I: Communication by WiFi

Mode 2: Standby

Contact discharge voltage: * 2 kV 4 kV

Air discharge voltage: * 2 kV 4 kV

Number of discharges: $\bar{D} \ge 10$

Type of discharge: Direct discharge ^a Air discharge

Contact discharge

Contact discharge [□]Positive ■Negative

Discharge location: "see photo documentation of the test set-up

*all external locations accessible by hand

*horizontal plate (HCP)

"vertical coupling plate (VCP)

4.5.5. Test result

Polarity:

The requirements are Fulfilled Performance Criterion: B



4.6. RF Electromagnetic Field

For test instruments and accessories used see section 3.6.

4.6.1. Description of the test location and date

Test location: Shielded room No. 3 Date of test: December 4, 2018

Operator: Mike

4.6.2. Severity levels of radiated, radio-frequency, electromagnetic field

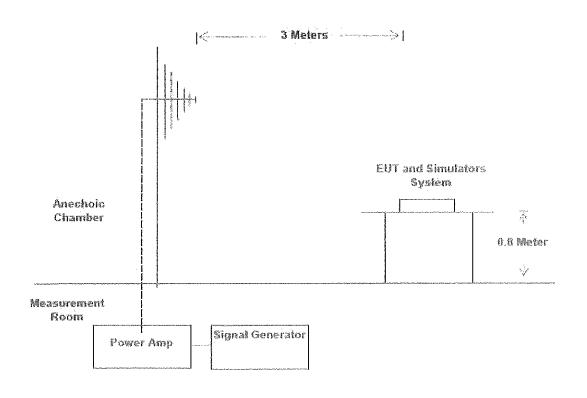
| Level | Field Strength (V/m) |
|-------|----------------------|
| 1 | I |
| 2 | 3 |
| 3 | 10 |
| X | Special |

4.6.3. Description of the test set-up

4.6.3.1. Operating Condition

The EUT is set to work shall be carried out normal communication mode during the test, and the maximum emanating results are recorded

4.6.3.2. Configuration of test setup



4.6.4. Test specification:

Mode 1: Communication by WiFi Test Modes:

Mode 2: Standby

 80 MHz to 2700 MHz Frequency range:

Field strength:: # 3, V/m

EUT - antenna separation:: #3 m

^a AM: 80 % Modulation:

sinusoidal 1000Hz

■ 1 % with 3 s dwell time Frequency step:

Antenna polarisation:: horizontal "vertical

4.6.5. Test result

The requirements are Fulfilled Performance Criterion: A



☑Description of Preliminary Test (Operating & Standby (Receiving) Modes)

| | Freq. Range | Field | Modulation | Polarity | Position (°) | Selection for |
|----|-------------|-------|------------|----------|--------------|---|
| | (MHz) | • | | | | the |
| | | : | | 2. | | final test |
| -1 | 80-1000 | 3V/m | Yes | H/V | Front | |
| | 1400-2700 | 3V/m | Yes | H/V | Front | |
| 2 | 80-1000 | 3V/m | Yes | H/V | Right | (X) |
| | 1400-2700 | 3V/m | Yes | H/V | Right | [X] |
| 3 | 80-1000 | 3 V/m | Yes | H/V | Back | |
| | 1400-2700 | 3∀/m | Yes | H/V | Back | |
| 4 | 80~1000 | 3V/m | Yes | H/V | Left | N. S. |
| , | 1400-2700 | 3V/m | Yes | H/V | Left | |

☑Result of Final Tests (Operating Mode & Standby(Receiving) Mode)

| Freq. Range | Field | Modulation | Polarity | Position (°) | Mode | Result |
|-------------|-------|------------|----------|--------------|-----------|-------------|
| (MHz) | · | | | | | (Pass/Fail) |
| 1400-2700 | 3V/m | Yes | H/V | Right | Normal | PASS |
| 80-1000 | 3V/m | Yes | H/V | Right | Operating | PASS |

| PERFORMANCE C | RITERIA | | | | |
|--------------------|---------|----------|---------|--------|--|
| Criteria requested | | ⊠А/ДВ/ДС | į įk. k | | |
| Criteria meet | | ⊠A/QB/QC | 1. | 12 | |

Remarks: During the test no deviation was detected to the selected operation mode(s).

4.7. Electrical Fast Transient/Burst Immunity Test According to EMC basic standard (EN61000-4-4 [11]

EUT Operating Mode: N/A

Type of Port: AC mains power input/ Telecommunication port

Performance Criterion: TT/TR

For the table top EUT the distance to the reference ground plane should be 80 cm.

The test level for ac mains power input ports shall be IKV open circuit.

Test Setup

Burst on Power Line (direct injection) and RJ45 Port



Test Results

| Adju | stment on UCS | 500 M4: Trigger | "AUTO" | | Test Time | e: [| 60s for every voltage and polarity | | | | |
|----------|-----------------|-----------------|------------|---------|-----------|-------|------------------------------------|----------------|------------|--|--|
| | Burst | ength: 15ms | | | | ·.· | 120s for ev | ery voltage an | d polarity | | |
| Testin | g on power | Rea | etion of T | he Test | Object Du | iring | and after To | est | Result | | |
| Line (di | rect injection) | | | . 4 | | ٠. | | d _a | | | |
| Test | Repetition | L1 =>GND | L2=> | L3= | > N- | > | PE=> | L1, N, => | | | |
| Voltage | Frequency | (+=>GND) | GND | GN | D GN | MD | GND | GND | | | |
| -0.5kV | 5kHz | n.r.r | N/A | N// | 1 n.i | r.r | N/A | n.r.r | Pass | | |
| +0.5kV | 5kHz | n.r.r | N/A | N// | 1, 11, 1 | í.ľ | N/A | n.r.r | Pass | | |
| -1.0kV | 5kHz | n.r.r | N/A | N// | A n.i | ra: | N/A | n.r.r | Pass | | |
| +L0kV | 5kHz | n.r.r | N/A | N// | N.1 | r.r | N/A | n.c.r | Pass | | |

Remarks: n.r.r. = no reaction recognized, N/A = not applicable.

Performance Criteria A observed and No any function degraded during the tests.



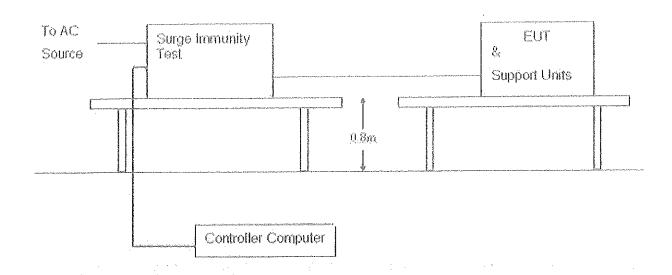
4.8. Surge Immunity Test

4.8.1. Description of the test location Test location: Shielded room No. 3 Date of test: December 4, 2018

Operator: 4,8.2. Limit

Please refer to EN 61000-4-5

4,8.3, Test Configuration



4.8.4. Test procedure

Please refer to ETSI EN 301 489-1 Clause 9.4.2 and EN 61000-4-5 for the measurement methods.

Test Modes:

Mode I: Communication by Wi-Fi

Mode 2: Standby

⊠Results of Final Tests (Operating Mode)

Voltage Waveform: 1.2/50 us Current Waveform: 8/20 us Polarity: Positive/Negative Phase angle: 00, 90°, 180 3, 270°



| Coupling Line | Voltage (kV) | Polarity | Coupling Method | Result (Pass / Fail) | | |
|-------------------------|--------------|------------|-----------------|----------------------|--|--|
| ☑ Line + Neutral | | Pos./ Neg. | Capacitive | Pass | | |
| QL+PE | 1 | Pos./ Neg. | Capacitive | Pass | | |
| OL+N+PE | 1 | Pos./ Neg. | Capacitive | Pass | | |
| UT, R-Ground | 0.5 | Pos./ Neg. | Capacitive | Pass | | |
| ⊠RJ45 port (LAN) | 0,5 | Pos./ Neg. | Capacitive | Pass | | |
| QRJ11 port (Line cable) | 0.5 | Pos./ Neg. | Capacitive | Pass | | |

Remarks: During the test no deviation was detected to the selected operation mode(s).

Test result: N/A



4.9. EMC Immunity Test

For test instruments and accessories used see section 3.6.

4.9.1. Description of the test location

Test location; Shielded room No. 2 Date of test: December 4, 2018

Operator;

4.9.2. PERFORMANCE CRITERIA

| Criteria | During the test | After the test |
|----------|--|---|
| Α | Shall operate as intended May show | Shall operate as intended Shall be no |
| | degradation of performance (see note 1) | degradation of performance (see note 2) |
| | Shall be no loss of function Shall be no | Shall be no loss of function Shall be no |
| | unintentional transmissions | loss of stored data or user |
| В | May show loss of function (one or more) | Functions shall be self-recoverable Shall |
| | May show degradation of performance | operate as intended after recovering |
| | (see note 1) No unintentional | Shall be no degradation of performance |
| | transmissions | (see note 2) Shall be no loss of stored |
| | | data or user programmable functions |
| С | May be loss of function (one or more) | Functions shall be recoverable by the |
| | | operator Shall operate as intended after |
| . • | | recovering Shall be no degradation of |
| <u> </u> | | performance (see note 2) |

NOTE 1: Degradation of performance during the test is understood as a degradation to a level not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

NOTE 2: no degradation of performance after the test is understood as any degradation below a minimum performance level specified by the manufacturer for the use of the apparatus as intended.

In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. After the test no change of actual operating data or user retrievable data is allowed. If the minimum performance level or the permissible performance degradation is

not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expectfrom the apparatus if used as intended.



PERFORMANCE FOR TT

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration, for which performance criteria C shall apply. Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an acknowledgement (ACK) or not-acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

PERFORMANCE FOR TR

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration for which performance criteria C shall apply. Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

PERFORMANCE FOR CT

The performance criteria A shall apply. Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an Acknowledgement (ACK) or Not Acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

PERFORMANCE FOR CR

The performance criteria A shall apply. Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

4.9.3GENERAL PERFORMANCE CRITERIA TEST SETUP

The EUT tested system was configured as the statements of 2.2 Unless otherwise a special operating condition is specified in the follows during the testing.



4.10 EFT/BURST TESTING

4.10.1 TEST SPECIFICATION

| Basic Standard: | IEC/EN 61000-4-4 |
|----------------------|-----------------------------|
| Required Performance | B |
| Test Voltage: | Power Line: 1 kV |
| | Signal/Control Line: 0.5 KV |
| Polarity: | Positive & Negative |
| Impulse Frequency: | 5 kHz |
| Impulse Wave shape : | 5/50 ns |
| Burst Duration: | 15 ms |
| Burst Period: | 300 ms |
| Test Duration: | Not less than I min. |

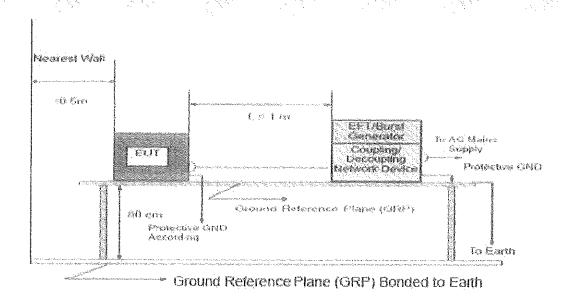
4.10.2 TEST PROCEDURE

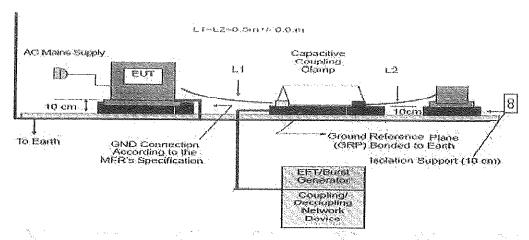
The EUT and support equipment, are placed on a table that is 0.8 meter above a metal ground plane measured 1m*1m min, and 0.65mm thick min.

The other condition as following manner:

- a. The length of power cord between the coupling device and the EUT should not exceed 1 meter.
- b. Both positive and negative polarity discharges were applied.
- c. The duration time of each test sequential was 1 minute
- d. For the actual test configuration, please refer to the related Item -EUT Test Photos.

4,10.3 TEST SETUP





Note:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table (0.8m high) standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system. A minimum distance of 0.5m was provided between the EUT and the walls of the laboratory or any other metallic structure.

FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-4 and its cables, were isolated from the Ground Reference Plane by an insulating support that is 0.1-meter thick. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system.



4.10.4 TEST RESULTS

| Coupling Line | | Test level (KV)l | | | | | | | Observation | Criterion | Result | |
|---------------|--------|------------------|----|---|---|-----|---|---|-------------|-----------|-------------|--|
| | | 0.5 | | | 1 | | 2 | | | | A Section 1 | |
| | | -+- | ** | - | | -1- | | + | | | | No. of Contract of |
| AC | L. | A | Α | Α | Α | | | | | | | N/A |
| Line | N | A | Α | Α | Α | | | | | | | N/A |
| | PE | | | | | | | | | | | N/A |
| | L±N | A | Α | Α | Α | | | | | | | N/A |
| | L+PE | | | | | | | | - | ara en | 13 | N/A |
| | N+PE | | | | | | | | | TT,TR | В | N/A |
| | L+N+PE | | | | | | | | | | | N/A |
| DC Line | · | | | | | | | | | | | N/A |
| Signal | | | | | | | | | | • | | N/A |
| Line | | | | | | | | | | | | |

Note:

- 1) P/N denotes the Positive/Negative polarity of the output voltage.
- 2) N/A denotes test is not applicable in this test report.
- 3) There was not any unintentional transmission in standby mode



4.10. Voltage Dips and Interruptions

For test instruments and accessories used see section 3.6.

4.10.1. Description of the test location

Test location: Shielded room No. 3 Date of test: December 4, 2018

Operator;

4.10.2. Limit

| Environmental phenomenon | Test specification | Units | Performance criterion |
|--------------------------|--------------------|------------|-----------------------|
| AC mains power in | put ports | | |
| Voltage dips | 0 | % residual | TT, TR |
| | 0.5 | cycle | (B) |
| | 0 | % residual | TT, TR |
| | 4 | cycle | (B) |
| | 70 | % residual | |
| | 0.5 | cycle | (B) (Note 2) |
| | 70 | % residual | TT, TR |
| | 25 | cycle | (B) |
| Voltage | 0 | % residual | TT, TR |
| nterruptions | 250 | cycle | (C) |

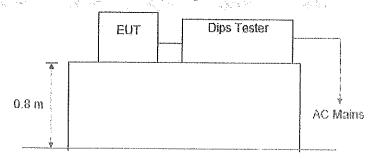
Note 2: As per EN 301489-7, there is special requirement for voltage dip.

4.10.3. Description of the test set-up

4.10.3.1. Operating Condition

The EUT is set to work shall be carried out normal communication mode during the test, and the maximum emanating results are recorded.

4.10.3.2. Configuration of test setup



4.10.4. Test specification:

Nominal Mains Voltage (VN):

#230 V AC

Number of voltage fluctuations:

Level of reduction(dip) / duration:

#100 % / 10ms

≥30 % / 500ms

Nominal Mains Voltage (V_N);

₦230 V AC

Number of Interruptions:

шЗ

Duration of the Interruption:

#5000 ms

Test Modes:

Mode 1: Communication by WiFi.

Mode 2: Standby

⊠Voltage Dips

| Test Level Reduction | | Duration | Observation | Result |
|----------------------|------|----------|-------------|--------|
| (% UT) | (%) | ূ'(ms) | | |
| 0 | 100% | 10 | Note 1 | PASS |
| 0 | 100% | 20 | Note 1 | PASS |
| <u>70 (</u> | 100% | 500 | Note 1 | PASS |

⊠Voltage Interruption

| Test Level (% UT) | Reduction (%) | Duration (ms) | Observation | Result |
|----------------------|---------------|---------------|-----------------|--------|
| 0 | 100% | 5000 | Note 1, 2 | PASS |

Note 1: The EUT performance complied with performance criteria A. There is no any degradation of performance and function.

Note 2: The power consumption of EUT has changed from adapter to battery during the test, but selfrecoverable after the test.

Remarks: During the test no deviation was detected to the selected operation mode(s)

Test Result: PASS

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4.11INJECTION CURRENT TESTING

4.11.1 TEST PROCEDURE

The EUT and support equipment, are placed on a table that is 0.8 meter above a metal ground plane measured 1m*1m min. and 0.65mm thick min.

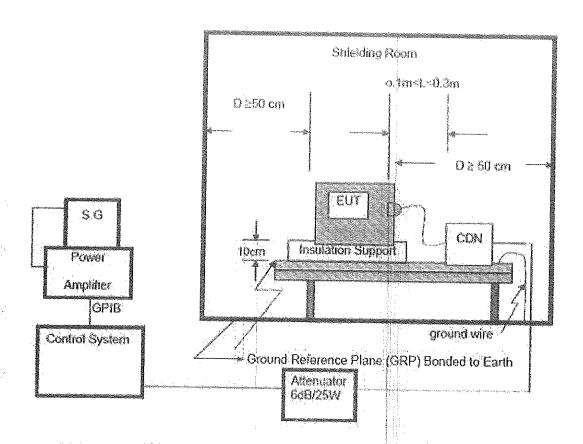
The other condition as following manner:

- a. The field strength level was 3V.
- b. The frequency range is swept from 150 KHz to 80 MHz, with the signal 80% amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5x 10-3 decade/s.

Where the frequency range is swept incrementally, the step size was 1% of fundamental.

- e. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- d. For the actual test configuration, please refer to the related Item -EUT Test Photos.

4.11.2 TEST SETUP



For the actual test configuration, please refer to the related Item -EUT Test Photos.

NOTE:

FLOOR-STANDING EQUIPMENT

The equipment to be tested is placed on an insulating support of 0.1 meters height above a ground reference plane. All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meters and 0.3 meters from the projected geometry of the EUT on the ground reference plane.

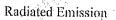
4.11.3 TEST RESULTS

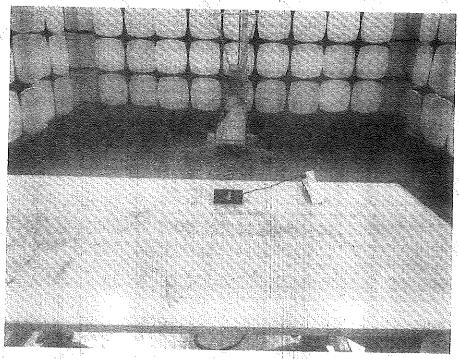
| Test Ports (Mode) | Freq. Range (MHz) | Field Strength Azimuth | Observation | Perform. Criteria | Results | Remark |
|------------------------------|----------------------|---------------------------|-------------|----------------------|---------|--------|
| Input/ Output AC. Power Port | 0.18-80 | 3 V/m (rms) AM | CT,CR | Α | Α | N/A |
| Input/ Output DC. Power Port | 0.18-80 | Modulated 1000Hz, 80% | N/A : | N/A | N/A | N/A |
| Signal Line | 0.18-80 | | N/A | N/A | N/A | N/A |

Note: "A" stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function, no loss of stored data or user programmable functions.

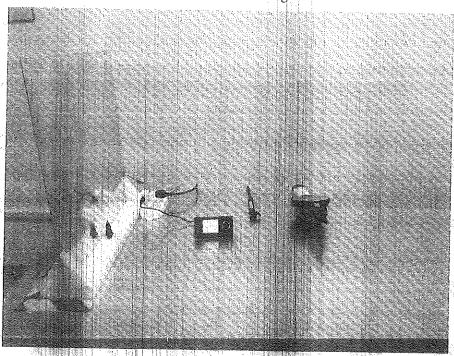


5. Test setup photo



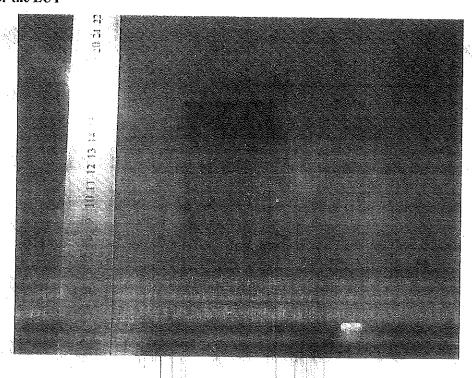


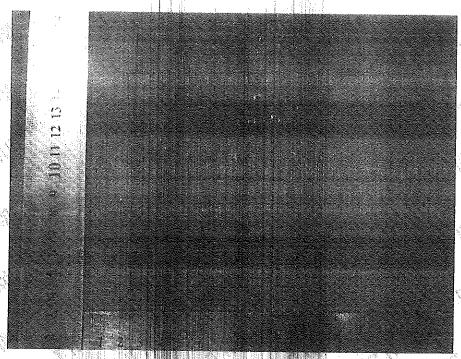
Electrostatic discharge



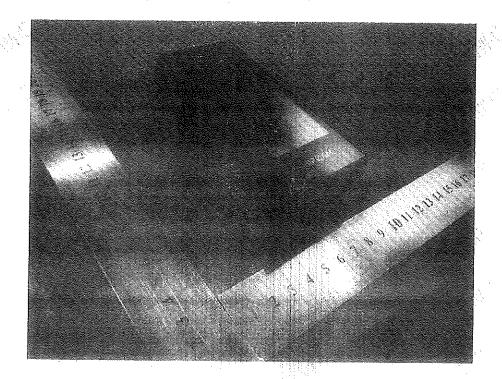
TMC Testing Services (Sherizhen) Co., Ltd. 1/F., Block A, Xinshidai Gongrong Industrial Park, No. 2, Shihuan Road, Shilong Community, Sh Testing&Certification Services iyan Street, Baoan District, Sherizhen, China (486)755 86642861 cert@tmc-lab.com

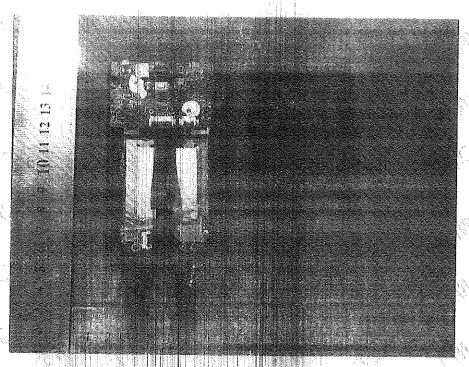
6. Photo for the EUT



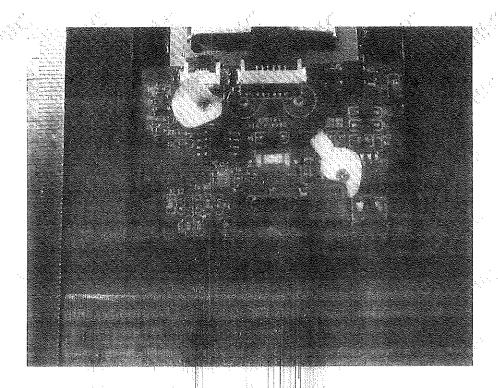








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End of the report



Shenzhen SEM.Test Technology Co., Ltd.

1/F, Building A, Hongwei Industrial Park, Lluxian 2nd Road, Bao'an District, Shenzhen, P.R.C. (518101)

CERTIFICATE OF CONFORMIT

Certificate No.: SEM17042720

The following product has been tested by Shenzhen SEM. Test Technology Co., Ltd. with the listing standards and found in conformity with the EC Directive 2014/30/EU & 2014/35/EU. It is possible to use CE marking to demonstrate the conformity with this 2014/53/EU RED Directive.

Report No.

: STR17048085E-1, STR17048085E-2, STR17048085E-3

STR17048085S

Applicant

IRINET S.A.

Address

GESTIDO 2435 OF. 102, Montevideo, Uruguay

Manufacturer

: Shenzhen SiGo Electronic Co.,LTD

Address

3/F, Build 8, FuLongTe Industrial Park, HuaXing Road Dalang

street , Shenzhen City, China

Description of Product

IP camera

Model No.

HD002, HD003, HD004, HD005, HD006, HD007, HD008,

HD009, HD10, HD20

Trade Name

Test Standards

: EN 300 328 V2.1.1 (2016-11)

EN 301 489-1 V2.1.1 (2017-02)

EN 301 489-17 V3.1.1 (2017-02)

EN 62479:2010

EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013

The referred test report(s) show that the product complies with the essential requirements in the above listed standards. The applicant is authorized to use this certificate in connection with the EC declaration of conformity according to Article 10.1 of the Directive.

Test Laboratory

Jandy So Supervisor

Date of Issue: Apr 13, 2017

This certificate of conformity is based on a single evaluation of the submitted sample(s) of the above mentioned product. It does not imply an assessment of the whole production and other relevant Directives have to be observed.

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